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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,092	02/18/2004	Timothy P. Mann	A42	4767

36378 7590 06/29/2007  
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EXAMINER

SAXENA, AKASH

ART UNIT	PAPER NUMBER
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2128

MAIL DATE	DELIVERY MODE
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06/29/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/782,092	MANN, TIMOTHY P.	
	Examiner	Art Unit	
	Akash Saxena	2128	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,9-15,21-23,28 and 29 is/are rejected.
- 7) ☒ Claim(s) 2-8,16-20 and 24-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Claims 1-29 have been presented for examination based on the application filed on 18<sup>th</sup> February 2004.

#### *Specification*

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Current abstract exceeds 150-word limit.

3. The title of the invention is not descriptive in view of the current invention. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested:

"Method & Apparatus for accelerating multiple virtual timers of virtual computer system after resuming from suspension mode"

#### Drawings

4. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to

obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. Claims 2, 3, and 16 fail to present the claims in the manner indicated by section MPEP 608 and objected to for the underlined reasons below.

**Content of Specification**

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
6. Claims 7 & 8 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. As best understood by examiner claim 7 discloses count value returned is between the last timer event and next timer event. Claim 8 disclose the count value returned is between the last timer event and next timer event where the count value is proportional to last timer event and next timer event in actual time. Both these represent same limitation as proportionality is understood because the virtual time is proportional to the actual timer (being provided by hardware clock).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 1

The claims uses relative terminology that implies virtual timer events "would occur" as they do in the physical computer system, however there is no indication how that is ensured making the claim indefinite.

Regarding Claim 2 & 3

Claim 2 discloses limitation "the average rate of timer events in the virtual computer system is substantially the same as the average rate at which timer events would be generated in a physical computer system", where the limits or bounds of the "substantially" are unclear.

Further, the claims uses relative terminology (would be) that implies virtual timer events would be occurring as they do in the physical computer system, however there is no indication how that is ensured making the claim indefinite.

Claim 3 suffers from the same deficiencies as above and is rejected likewise.

Regarding Claim 4

Claim 4 is rejected for phrase "substantially the same" as in claim 2 and also for the use of the relative terminology.

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Regarding Claim 5 & 6

Amended claim 6 discloses limitation, "substantially immediately". Examiner is uncertain as to what metes and bounds (& distinction) between executing the catch-up mode when the virtual timer falls behind the physical computer timer

"substantially immediately" and "predetermined amount". The "predetermined amount" limitation is present in claim 5.

Regarding Claim 8

The language presented after the phrase "based on the proportion..." is unclear as to what the actual time represents and if it has any relation to the time in the physical computer system.

Regarding Claim 9

Examiner is unclear as there are many time indexes presented including "apparent time" as presented to the guest software running to virtual machine, time as present on the virtual machine indicated by the virtual timers and actual time. A clear distinction, in claims, as to what these 3 time values represent and who perceives them is required for clear understanding of the claims.

Regarding Claim 11

Claim 11 suffers from the same relative terminology rejection as presented in claim 1 and is rejected for the same reasons. Dependent claims are rejected likewise as well as they do not cure this deficiency.

Regarding Claim 16

Claim 16 suffers from the same deficiencies as presented in claim 2 and is rejected for the same reasons. Dependent claims are rejected likewise as well as they do not cure this deficiency.

Regarding Claim 17 & 18

Claims represent relative and unclear limitations like "substantially proportional", and "substantially the same" whose metes and bounds are not clear. Please see rejection for claim 5 & 6 as these claims are rejected likewise.

Regarding Claim 19

Claim 19 disclose limitation, "... goes behind the timing...". it is unclear which timing is being referred at this point (actual or virtual).

Regarding Claim 20

Claim 20 disclose limitation "substantially immediately" and is rejected as in claim 5.

Regarding Claim 23

Claim 23 is rejected for the same reasons as claim 1 due to relative terminology.

Regarding Claim 24

Claim 24 discloses the limitations, "apparent time is substantially the same as real time" and "apparent time is substantially behind the real time". It is unclear what would be the metes and bounds of these limitation to select one from another.

Regarding Claim 25

Claim 25 disclose limitation "substantially proportional" and is rejected as in claim 17.

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Regarding Claim 27

Claim 27 disclose limitation "substantially immediately" and is rejected as in claim 5.

8. Claim 8 recites the limitation "the actual time". There is insufficient antecedent basis for this limitation in the claim.



***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 9-15, 21-23, and 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,349,388 by Richard G. Russell (Russell hereafter).

Regarding Claim 1

A method for emulating a plurality of virtual timers in a virtual computer system, the virtual timers being programmable by guest software to generate a plurality of timer events (Russell: Abstract), the method comprising: receiving programming information from the guest software for programming a first virtual timer (Russell: Col.5 Lines 48—Col.6 Line 13; Fig.3); receiving programming information from the guest software for programming a second virtual timer (Russell: Col.5 Lines 48—Col.6 Line 13; Fig.3); determining when the first virtual timer would generate timer events if it were implemented in a physical computer system, based on the programming information received from the guest software (Russell: Fig.3 Col. 3 Terminal time value where each row represents a timer); determining when the second virtual timer would generate timer events if it were implemented in a physical computer system, based on the programming information received from the guest software (Russell: Fig.3 Col. 3 Terminal time value where each row represents a timer); and generating timer events for the first virtual timer and the second virtual

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timer in the same combined sequence that they would occur if the first and second virtual timers were implemented in a physical computer system (Russell: Col.5 Lines 42-47 Fig. 2 Element 210 being initiated).

Regarding Claim 9

Russell teaches that the method is performed by keeping track of an apparent time, which represents the time as it would appear to the guest software (Russell: Fig. 2 - Elapsed time value).

Regarding Claim 10

Russell teaches that the method is performed using a timer event queue (Russell: Col.6 Lines 20-38).

Regarding Claim 11

Claim 11 discloses similar limitations as claim 1 and is rejected for the same reasons. Claim 11 discloses a computer program embodied in a tangible medium, which is mapped to the timer state machine (program) and the associated timers embodied in a tangible medium (memory).

Regarding Claim 12 & 13

Claims 12 and 13 disclose similar limitations as claim 10 are rejected for the same reason as claim 10.

Regarding Claim 14 & 15

Russell teaches timer event queue maintains a single time value for each of the plurality of virtual timers, representing a time at which the respective virtual timer

should generate its next timer event as timer states in link list in the time-out order (or next timer event) (Russell: Col.6 Lines 20-38).

Regarding Claim 21

Russell teaches if a software entity attempts to read a count value from a virtual timer, the time coordinator provides a value to one of the timer emulators, which causes the timer emulator to return a count value to the software entity that represents a time value that occurs after a time value that is represented by a most recent preceding timer event and before a time value that is represented by a next timer event to occur (Russell: Col.5 Lines 28-40; Col.6 Lines 38-48).

Regarding Claim 22

Russell teaches the time value that is represented by the count value that is returned to the software entity falls proportionately between the time value that is represented by the most recent preceding timer event and the time value that is represented by the next timer event to occur, based on the proportion at which the time of the attempted reading of the count value falls between the actual time that the most recent preceding timer event was generated and the actual time that the next timer event is scheduled to be generated as proportional to the actual time because actual time is represented by the free running counter (Russell: Fig.2 Element 202).

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Regarding Claim 23

Russell teaches a method for coordinating a plurality of virtual timers in a virtual computer system, the virtual computer system operating within a physical computer system (Russell: Abstract), the method comprising: receiving programming information for each of the virtual timers, indicating when each of the virtual timers is to generate timer events; determining when each of the virtual timers would generate timer events if the virtual timers were implemented in a physical computer system (Russell: Col.5 Lines 48—Col.6 Line 13; Fig.3); and causing the virtual timers to generate timer events in the same combined sequence as if the virtual timers had been implemented in a physical computer system (Russell: Fig.3 Col. 3 Terminal time value where each row represents a timer; Russell: Col.5 Lines 42-47 Fig. 2 Element 210 being initiated).

Regarding Claim 28 & 29

Claims 12 and 13 disclose similar limitations as claim 21 & 22 are rejected for the same reason as claims 21 & 22.

***Allowable Subject Matter***

10. Claims 2-8, 16-20, and 24-27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).
11. Reasons for allowance are withheld until an amendment correcting the deficiencies under 35 USC 112 and formal matter is presented.

**Conclusion**

12. All claims are rejected.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

14. **Examiner's Note:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

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**Communication**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akash Saxena whose telephone number is (571) 272-8351. The examiner can normally be reached on 9:30 - 6:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini S. Shah can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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